

his work on the Ionian Islands (pp. 415-419) chiefly from the report of the Lord High Commissioner, Sir Howard Douglas. The prison was in this case also unroofed, and hardly a house in the town of Zante escaped some injury. All of the villages on, or bordering on, the plain suffered more or less, especially Sculikado, which was reduced to a heap of ruins. The total amount of damage done was estimated at not less than £300,000. The great earthquake was followed by a large number of others, some very severe, ninety-five being counted up to November 4. Ansted notes (pp. 368, 369) the curious fact that each of the Ionian Islands seems for the most part to have its own earthquakes, independently of the others. About the year 1818, he says, all the sensible shocks in Cephalonia and Zante were tabulated, the record extending over two and a quarter years. "During this time thirty distinct and well-marked shocks were recorded in Cephalonia; but in no case did the shocks in Zante, although nearly contemporaneous, absolutely coincide with them. In most cases an interval of some days, and almost always more than twenty-four hours, seems to have elapsed between the times of the disturbances in the two, although they are so near that in these days [1863] of long range, a cannon-shot fired from the one might reach to the other."

NOTES.

THE French Academy of Sciences has opened a subscription in support of the movement for the publication of the writings of Jean Servais Stas and the erection of a monument in his memory.

A MEETING of delegates of the Academies of Science at Berlin, Göttingen, Leipzig, Munich, and Vienna was held on January 29, under the presidency of Prof. Ribbeck. The object of the meeting was to prepare the way for a sort of federal union of the various German scientific societies, so that they may be able to act together about important matters of common interest. A hope was expressed that a great international confederation of scientific societies might ultimately be formed.

ANNOUNCEMENT has been made of the death, on February 2, 1893, at Hendaye, in the Department of the Basses Pyrénées, in his sixty-eighth year, of M. Victor Aimé Léon Olphe-Galliard, author, among other works, of "Contributions à la Faune Ornithologique de l'Europe Occidentale," in forty livraisons (of which the last was published in 1892) giving an elaborate description of the birds not merely of Western but of almost the whole of Europe, to say nothing of allied species belonging to other countries. M. Olphe-Galliard (whose name few writers, even Frenchmen, spell correctly) was remarkable among his countrymen for his knowledge of other languages than his own, and his recognition of the works of foreign ornithologists stands out in great contrast with that accorded to them by most continental authors. He translated into French several valuable papers written in Swedish and other tongues as little known, thus bringing them before readers to whom they would have been otherwise inaccessible, while he still further showed his appreciation of foreign naturalists by introducing into his principal work portraits of Johann Friedrich Naumann and William Macgillivray as the representative ornithologists of Germany and Great Britain. The earliest performance by which M. Olphe-Galliard will be remembered was his description in the *Annales* of the National Society of Lyons for 1852 of the interesting Algerian bird which he called *Erethacus Moussieri*, after a French army-surgeon of that name who had recognised it as a new species in 1846. In the following year specimens of it were procured by the late Mr. Louis Fraser, and placed in the British

Museum, but they met no kind reception there then, or even later, for the species finds itself in the *Catalogue of Birds* (vii. p. 20) far removed from what all naturalists who have observed it in life declare to be its nearest relations—the Stonechats or the Redstarts—and shot into the rubbish-hole placarded *Time-lide*, where no one would ever think of looking for it. M. Olphe-Galliard's latest publication consisted of letters addressed to him by the somewhat eccentric Christian Ludwig Brehm, which appeared in the *Ornithologisches Jahrbuch* for 1892.

A MEETING of conchologists is to be held at 67, Chancery Lane, on Monday, February 27, at 8 p.m., for the purpose of founding a "Malacological Society of London."

THE Geologists' Association has arranged for a visit of the members to the British Museum (Natural History), Cromwell Road, on March 18, when Mr. W. Carruthers will give a demonstration on "Gymnosperms from the Devonian to the present time." There will be an excursion to Norwich, Cromer, and Lowestoft at Easter.

SOME admirable suggestions for the guidance of teachers of evening classes in wood-working under the direction of County Councils have been prepared by the Examination Board and Committee of the City and Guilds of London Institute. The suggestions relate to drawing lessons, object lessons, and bench work lessons.

THE type of weather during the past week has undergone but little change from that of the preceding week. Anticyclonic areas lay over Scandinavia and Spain, and low pressure systems continued to skirt our north and west coasts. The general conditions, however, were much quieter, although a deep depression reached the west of Ireland on Sunday, causing gales on our western coasts. On Tuesday a large and important disturbance arrived over the south-west of England from off the Atlantic, and the wind circulation around its central area was complete. The difference of barometric pressure was, however, by no means large in different parts of the kingdom, and consequently there was not much wind. The barometer fell as low as 28.7 inches over the centre of the cyclonic area, and later during the day the disturbance continued its passage across England, and was accompanied by heavy rain. Temperature continued high for the season, the daily maxima ranging generally from 45° to 55°, while on Sunday, the 19th inst., the thermometer rose to 60° in the inland parts of England. In London it reached 59°, which was a higher reading than had been recorded so early in the year since 1878. The sky was exceptionally brilliant in the east and south-east on that day, but on the whole the air has been very damp throughout the week, and rainfall has been of almost daily occurrence. For the week ended the 18th inst. the rainfall exceeded the mean in all districts, except in the east of England. In the west of Scotland and the south-west of England the excess was considerable. Bright sunshine only exceeded the normal amount in Ireland and the north and east of Scotland.

THE Pilot Chart of the North Atlantic Ocean for February, 1893, shows that the weather in the North Atlantic during January was not abnormally severe, and that the eastern part of the ocean was unusually free from storms. A map is given illustrating the great size and severity of the hurricane of December 22 last, which had moved rapidly from Hatteras in an east-north-east direction. At the time selected for illustration, when the centre lay in longitude 36° west, the storm area covered the entire Atlantic from Labrador and Nova Scotia to Madeira, Portugal, and Ireland. Some very low barometer readings were recorded, the lowest being 27.75 inches. There was a large amount of ice during January along the coast of

America, as far south as Hatteras; in Chesapeake Bay it was reported to be thicker than for twenty-five years.

THE official report of the International Meteorological Conference at Munich from August 26 to September 2, 1891, has now been issued. It contains protocols of the various meetings, with appendices and supplements.

THESSALY was supposed to have got rid of the plague of field mice, but it appears that the congratulations offered to her were somewhat premature. The Athens correspondent of the *Times* telegraphs that swarms of these troublesome creatures are beginning to reappear both in Thessaly and in the neighbouring district of Phthiotis. "It was hoped," he says, "that the severe cold and heavy rains of the last few months had exterminated them, but they seem to have taken refuge in the mountains, and are now returning in large numbers to the plains. The Prefect of Phthiotis has applied to the Government for instructions as to the best means of dealing with this destructive pest."

ACCORDING to a correspondent of the *Scotsman*, writing from Northwickbrae, Selkirkshire, the mice pest in Scotland has greatly diminished, if it has not entirely disappeared, during the last two months. "The great abundance of owls," he says, "coupled with the very severe weather, has no doubt given them a check." During the severe storm of last month the owls, unfortunately, suffered also. The keeper at Alemoor Loch counted over thirty of the short-eared or heather owl, and eight kestrel hawks—some lying dead, others able to fly a few yards only, while several sat until lifted in the hands. The short-eared owls did not go to the woods to roost, which were close to the loch, but were in the willows and reeds along the edge of the loch.

SIR EDWARD BIRKBECK has accepted the presidency of the British Sea-Anglers' Society, which was founded recently at a meeting held in London. It is proposed that the Society shall have branches in all parts of the United Kingdom, and the members hope that they may be able not only to secure for themselves certain advantages in connection with their favourite sport, but to be of some public service. The chairman of the preliminary meeting, Mr. C. H. Cook, touched on the question of legislation for the protection of sea-fish. "I hope," he said, "that the anglers will take up the cause of immature sea-fish. Already a movement, to which we may give a strong impetus, is rolling forward in this direction, but it is checked by the trawlers' interests. The harm done by these men is almost incalculable. I have seen their nets within a stone's throw of the shore, in less than three fathoms of water, where they scoop up and destroy the infant fish by the million. It may be that the evidence tendered by trustworthy members of the Sea-Anglers' Society may be the means of putting an end to inshore trawling. I hope it will. It often happens that the information given to the Fishery Boards is wilfully misleading, owing to it being given by fishermen, who fear they will lose their living."

THE Council of the Cremation Society of England, in its Report for 1892, expresses much satisfaction with the progress made by the cause which the Society represents. It seems that within the year no fewer than 104 bodies were cremated, "including a large proportion of individuals well known in society by their connection with art, science, or literature, or by a distinguished position of some other kind, ten having been members of the medical profession."

MR. A. H. S. LUCAS, who has edited the *Victorian Naturalist* admirably since it was started nearly nine years ago, has tendered his resignation in consequence of his election to the head-mastership of Newington College, Sydney. The Field Naturalists' Club, of Victoria, to which the magazine belongs,

has expressed its cordial thanks to Mr. Lucas for his services. Mr. F. G. A. Barnard, who has been both secretary and librarian of the club, will act for the present as Mr. Lucas's successor.

A MOST interesting and suggestive paper on "pottery glazes: their classification and decorative value in ceramic design" was read by Mr. W. P. Rix at the meeting of the Society of Arts on February 7. It is printed in the current number of the Society's Journal. Mr. Rix tries to show that the relative merit of various glazes is based upon certain optical principles, which have only been partially examined by men of science, and that these principles, underlying the pleasurable sensations to the eye, really govern that which we are pleased to call good taste and excellence, so far as glazes are concerned, and are not mere matters of opinion. The reading of the paper was followed by a lively discussion, in the course of which Mr. Binns quoted a saying attributed to Mr. Gladstone, that a fine piece of glaze "feels like the touch of a baby's hand." Mr. Binns had often been struck with the aptness of the illustration. There was a peculiar soft texture in a fine piece of glaze that only a connoisseur could appreciate.

THE *Times* of Tuesday gives an account of a process by which anthracite coal bricks are now being manufactured. The bricks are made of grains of anthracite dust, which are forced to cohere by means of a special cementing compound and by great pressure. The coal dust is mixed with the binding material in the proportion of 96 per cent. of the former to 4 per cent. of the latter. The compound is fed into a mixer, where it meets a jet of steam, a stiff paste being formed, which is delivered successively into a series of moulds under a pressure of 25 cwt. As the mould plate revolves, the charge in each mould is brought between two rams, which exert a pressure of two tons per square inch on each side of the charge, forming a very dense and homogeneous coal brick. The brick, still in the mould, passes on to the delivery ram, by which it is pushed out on to a table, and is removed for the market. These coal bricks are said to make an excellent fuel and to possess a very high efficiency for steam-raising purposes. The *Times* thinks that with such a fuel at the disposal of the public there is room to hope for a reduction in the pollution of the atmosphere of towns, as well as a reduction in the coal bills of steamship companies and of steam users generally. It adds that the invention is being worked by the Coal Brick Syndicate, of 2, Trafalgar-buildings, Northumberland Avenue, London.

It seems that serious depredations have been committed among the recently-discovered Phœnician tombs at Gebel Imtarfa, in Malta. The *Mediterranean Naturalist* says that the manner in which not only these tombs, but many others, have been rifled of their contents by irresponsible curiosity hunters, and the state in which many of the ancient ruins of the islands now are constitute a disgrace to European archaeological science. More has been done to obliterate and destroy vestiges of Malta's ancient history during the last two centuries than was effected in the preceding two thousand years. Orders have been issued from head-quarters, Valletta, to the effect that the District Commanding Royal Engineer is to report immediately any discoveries of ancient tombs, burial places, or pottery that may occur in course of excavations for works, or come to light in any way; and that such objects are to be carefully preserved until they have been inspected by an officer of the Civil Government, and left untouched *in situ* until this inspection has been made.

A DISCUSSION on Mr. F. G. Carey's paper—to which we lately referred—on the bridges of the Manchester Ship Canal is

reported in the new instalment of the Transactions of the Institution of Engineers and Shipbuilders in Scotland. Mr. Carey, in the course of his reply to the various speakers, alluded to the question as to the value of annealing steel. He said that, so far as his experience went, annealing steel certainly removed all stress. At the Forth Bridge they were very curious about this subject. They had a single strip of steel, which they strained up to some 30 times, to about 25 tons on the square inch. After every straining, it was annealed. That went on for days and weeks, and the steel seemed to be literally the same as when they started. The experiment grew wearisome, and ultimately, when the strain was run up inadvertently to about 30 tons per square inch, and the specimen finally broke, it was almost a relief, but it proved that the annealing of steel removed all strain, and that, although injured, if annealed, it seemed to recover its former properties.

A VALUABLE synonymic and bibliographical catalogue of the New Zealand land and freshwater Mollusca, by H. Suter, was communicated to the Linnean Society of New South Wales at its meeting on December 28. In 1880 Prof. Hutton, in his "Manual of the New Zealand Mollusca," enumerated 125 species of land, fresh, and brackish water molluscs. Since then zoology has made such rapid strides that this fauna is raised in Mr. Suter's catalogue to a total of 178 species, divided by him into 45 genera. The land mollusca embrace 142 species, of which 15 are operculate; the fluviatile shells are reckoned at 32, 12 being bivalves and 7 operculate univalves. This large addition of one-third to the list of twelve years ago is not the greatest advantage the present catalogue has over its predecessor; numerous species are now removed which, by the negligence of collectors or the errors of European authors, were formerly included among the shells of New Zealand. The attention bestowed during the last decade upon the anatomy of the New Zealand snails has furnished data for a more natural classification, while the increase of colonial libraries has facilitated the quotation of fuller references than were previously available.

MR. J. M. STAHL, Illinois, has much to say in the *American Agriculturist* about the virtues of wood ashes. Speaking of them as a medicine for farm animals, he says he has found them of great value. He has raised swine rather extensively for more than twenty years without cholera or swine plague, and has not lost one per cent. of his hogs from disease. He keeps wood ashes, and charcoal mixed with salt, constantly before his swine in a large covered box with holes two-by-six inches near the bottom. The hogs will work the mixture out through these holes as fast as they want it. He selects ashes rich in charcoal, and mixes three parts of ashes to one of salt. There is no danger of the swine eating too much of this mixture, or of pure salt, if it is kept constantly before them, and they are provided with water. The beneficial effects of the mixture are quite marked, especially when the hogs are fattened on fresh maize. A little wood ashes, given to horses, is also, he maintains, very beneficial. In thirty-seven years' experience upon the farm he has lost but one horse, and this was overheated in the horse-power of a threshing-machine during his absence, and the only "condition powder" he has ever used has been clean wood ashes. The ashes may be given by putting an even teaspoonful on the oats twice a week, but he prefers to keep the ashes and salt mixture constantly before the horses, and has made for it a little compartment in one corner of the feed box. His experience is that the best condition powder is a mixture of three parts wood ashes to one of salt; and that when it is given regularly, and reasonable care and intelligence are used in handling the horse, no other medicines are necessary. Mr. Stahl has also great faith in the efficacy of wood ashes as a fertiliser.

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A VALUABLE paper on the industrial resources of the Caucasus, by an Austrian official, Herr G. Sedlaczek, is summarised in the Board of Trade Journal for February. Dealing with the silk industry, the author says that the Russian Government has spent more money for the furtherance of this department of trade than for any other industrial purpose in Caucasia, and that the results are in no way commensurate with the trouble and outlay. Although the country possesses innumerable mulberry trees, in some parts forming veritable forests, and excellently suited for feeding silkworms, although the climatic conditions are favourable, and the inhabitants have from time immemorial been familiar with the working up of the raw material, the most untiring efforts of the Government have proved little else than a struggle to preserve the mere existence of the silk culture and industry. The estimated production of silk in Transcaucasia at the present day is 36,000 pounds, although in 1855 it was 30,000 pounds. The average value of the produce is said to be about 6,000,000 roubles. Considerable advance has been made in reeling, spinning, and twisting; new foreign machinery is everywhere at work, and all that is wanting is a good raw material, the production of which is, however, being constantly prevented, on the one hand by disease in the worms, and on the other by the indolence of the producers. The Russian demand for silk is far from covered by native production, silk being annually imported to the value of about 12½ millions of roubles, while the exports amount only to about 3,000,000 roubles in value. In spite of protective duties the imports are increasing while the exports are decreasing.

MANY marine animals (radiolaria, ctenophora, &c.) rise and sink slowly in the water, having some means, apparently, of changing their specific gravity. This has been recently studied by Herr Verworn (*Pflüger's Archiv*), in the case of *Thalassicolla nucleata*, a radiolarian about the size of a pea. It has a central capsule with nucleus, a coarse endoplasm, a vacuole-layer, a gelatinous-layer, and ray-like processes. As a rule, these animals float at the surface. They sink on seizing food heavier than themselves, also when strongly stimulated by shaking, or by chemical agents. It was found that the central capsule and the gelatinous layer are both heavier than sea-water, while the vacuole-layer is lighter. On being stimulated, the pseudopodia (or processes) were drawn into the vacuole-layer, and the protoplasm also retired from this, the walls of the vacuoles flattening from without inwards, till at length very little of them was left. Then the animal began to sink. At the bottom the vacuoles were soon regenerated, and the animal rose again. Thus it appears that the vacuole-layer is the hydrostatic apparatus of these organisms, the vacuole liquid being that part of the cell which is lighter than sea-water, and keeps the cell at the surface. The same probably holds good with other pelagic animals. That the vacuole-liquid is lighter than the sea-water from which it comes is no difficulty, since it is known that living protoplasm is impermeable for many salts.

A VOLUMETRIC method for determining the amount of chromium in a specimen of steel has become a great metallurgical desideratum since the good qualities conferred upon steel by its addition have become generally known. Such a method is described by G. Giorgis, of the University of Rome, in the *Atti of the Accademia dei Lincei*. It is founded upon the formation of potassium chromate and hydrated manganese sesquioxide on adding a solution of potassium permanganate to a solution of sesquioxide of chromium in potassium hydrate. Ten grammes of the steel are dissolved in a mixture of sulphuric and nitric acids (3 to 1), the solution is made up to 1 litre with distilled water, and 250 c.c. are made just alkaline with sodium hydrate, and treated with hot permanganate of potash till the solution assumes a red colour. After cooling the whole is

poured into a flask of 500 c.c. capacity, filling up with water. 400 c.c. are filtered through a dry filter, acidified with sulphuric acid, reduced by SO_2 , and concentrated to 200 or 100 c.c., according to the quantity of chromium probably present. Donath's method may then be employed, consisting in the addition of the chromium salt prepared as above described, to a measured quantity of a standard permanganate solution, and watching for the golden yellow colour assumed by the mixture when the permanganate is all dissolved, *i.e.* when all the chromium exists in the form of a chromate, from which the amount of chromium is easily calculated. It is said that this process is extremely accurate, and requires only a small fraction of the time required by gravimetric methods.

THE subject of dew appears to be still involved in some controversy. An experimental contribution to it has been recently made by Herr Wollny (*Forschungen*, &c.), who used plants in glazed pots with earth of varying moisture, some of these being allowed to radiate freely on favourable nights, while others were screened. The following is a brief outline of Herr Wollny's views:—Dew depends partly on evaporation from the ground, partly on transpiration. It is at present doubtful whether precipitates from the air share in it or not. A cloudy sky weakens the cooling process without stopping it wholly. With copious radiation, the temperature minimum is at the surface of the plant-covering (of the ground), and here the aqueous vapour rising from the warm ground is partly precipitated. With increase of the ground-heat downward there is increase of the water brought up by the plants, which is given up as vapour and condensed. The more moisture there is in the ground, the more water is evaporated from the ground and the plants. Dew formation is usually favoured by the larger number of stomata on the under surface of leaves than on the upper. On a given surface of ground the dew is more plentiful the stronger the plant organs above ground, and the closer the plant growth. The temperature of still air increases from the surface to a certain limit (at about 5 feet over grass it was sometimes 4° or 5°C. warmer than on the ground). In experiments with blotting paper, cotton wool, feathers, and asbestos, the first was much moistened, while the others showed dew in drops. Bodies of organic origin attract more moisture than those of mineral (a case of hygroscopic absorption). For vegetation, the author considers the benefit of dew but trifling. Of the whole annual precipitation at Munich dew only gave 3.23 per cent.

WITH the present year the weekly *Botanische Zeitung* enters on the fifty-first year of its existence, and Graf zu Solms-Laubach gives with the first number of the year an interesting sketch of its history, uninterrupted for half a century, even during the stormy period of 1847–1849. The inception of the undertaking was due to the suggestion of a botanist still living, Dr. Carl Müller, of Halle. The first number of the *Botanische Zeitung* appeared on January 9, 1843, under the editorship of Von Mohl and Schlechtendal. The editorial chair has been occupied since then by some of the most distinguished German botanists, De Bary, Hallier, Kraus, Jost, and the present editors, Solms-Laubach and Wortmann.

DR. VINES, the Professor of Botany in the University of Oxford, has for some time past had in preparation a "Student's Text-book of Botany," which will be more comprehensive than his edition of Prantl's well-known "Elementary Text-book." It is to be fully illustrated, and is expected to be ready early in the autumn of this year. It will be published by Messrs. Swan Sonnenschein and Co.

MESSRS. GAUTHIER-VILLARS ET FILS, Paris, continue to issue the useful series of small volumes called "Encyclopédie Scientifique des Aide-Mémoire." The follow-

ing volumes have lately been added: "Corderie," by M. Alheilg; "Formation des Gîtes Métallifères," by L. de Launay; "Le Grisou," by M. Le Chatelier; "Moteurs à Vapeur," by M. Dutebout; "Détente Variable de la Vapeur," by A. Madamet; "Canons, Torpilles, et Cuirasses," by A. Croneau; "Textiles Végétaux," by H. Lecomte; "Essais d'Or et d'Argent," by H. Gautier; "État Actuel de la Marine de Guerre," by L. E. Bertin; "Industrie des Cuirs et des Peaux," by Ferdinand Jean.

THE "Annuaire," for 1893, of the Royal Observatory of Belgium, by F. Folie, has been published. This is the sixtieth year of issue.

THE Department of Science and Art has issued the volume for 1893 containing its calendar, history, and general summary of regulations.

IN the course of an elaborate investigation recently published in the *Zeitschrift für Hygiene*, December 9, 1892 ("Die Ätiologie des infectiösen fieberhaften Icterus" (Weil'sche Krankheit), Jaeger draws attention to the dangers which may arise from bathing in polluted water. Already in 1838 Pfuhl (*Deutsche militär-ärztl. Zeitschrift*, 1838, Heft 9 and 10) attributed an outbreak of typhoid fever, accompanied by jaundice, which occurred amongst the garrison stationed at Altona to bathing in the Elbe, which at the time was described as more than usually polluted. Hüber and Globig came to similar conclusions with regard to outbreaks of the above "Weil'sche Krankheit," which appeared at Ulm on the Danube and Lehe respectively. Jaeger has made a special study of the case, which arose amongst the soldiers at Ulm, and has endeavoured to trace, if possible, the infection to its source. It was found that the military bathing-place was situated below the point where the Danube is joined by the highly-polluted river Blau. This stream is described as being practically an open sewer, and even before it reaches Ulm is stated to be grossly contaminated in its flow through the small village of Söflingen. It was further ascertained that in this village for many years a mysterious disease had been rife amongst the ducks and geese, whilst fowls were also occasionally attacked, and that moreover it was a common custom to throw the dead carcasses of these animals into the Blau as the readiest means of getting rid of them. A careful examination of some of the birds which had succumbed to this disease revealed the constant presence of a micro-organism, which Jaeger asserts was identical with that found repeatedly and isolated in the cases of icterus investigated by him at Ulm. It is further stated that by mixing some of the highly-polluted Blau water at Söflingen with sterile broth, and inoculating it into white mice, they were killed in sixteen hours, and that the organism, which was found abundantly present in various organs of the body, was in every respect identical with that previously isolated in the cases of icterus at Ulm, and from the carcasses of the birds at Söflingen. Taking these various results into consideration Jaeger is of opinion that they afford very strong evidence of the virus of this disease having been introduced into the highly contaminated stream at Söflingen, and conveyed thence to the military bathing-place, which, as already mentioned, is situated below the junction of the Blau with the Danube. In consequence of the appearances in cultivations to which this organism gives rise, the author has suggested for its name *Bacillus proteus fluorescens*, and claims in it to have discovered the exciting cause of the so-called "Weil'sche Krankheit," the etiology of which is attracting much attention on the continent.

NOTES from the Marine Biological Station, Plymouth:—Heavy gales have prevailed for many weeks, confining operations to the inshore waters. The week's captures include numbers of the Archiannelid *Dinophilus teniatus*, of the Polychæta *Marphysa*

sanguinea and *Sigalion boa*, and of the Nudibranch *Ancula cris-tata*. In addition to the forms mentioned last week, the townetings have contained the Siphonophore *Muggiea atlantica*, the Anthomedusa *Margellium (Lizzia) octopunctatum*, and several ephyrae of *Aurelia*, together with numbers of Teleostean ova, Prosobranch and Opisthobranch veligers, larval Lamelli-branchs and *Cyphonautes*-larvae. The Polychaete *Cirratulus cirratus* and Gastropod *Littorina littoralis* are also breeding.

THE additions to the Zoological Society's Gardens during the past week include a Vervet Monkey (*Cercopithecus lalandii*) from South Africa, presented by Mr. Walter Neall; two Red and Yellow Macaws (*Aratinga chloroptera*) from South America, presented by Mr. Henry Goschen; a Herring Gull (*Larus argentatus*) European, presented by Mr. W. R. Galbraith; a Bar-breasted Finch (*Munia nisoria*) from Java, presented by Mr. Sydney D. Birch; two Whooper Swans (*Cygnus musicus*) European, purchased; a Vulpine Phalanger (*Phalangista vul-pina*), three Barbary Mice (*Mus barbarus*) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

COMET BROOKS (NOVEMBER 19, 1892).—The following ephemeris for Comet Brooks is taken from *Astronomische Nachrichten*, No. 3142:—

1893.	R.A. (app.) h. m. s.	Decl. (app.) °
Feb. 23 ...	0 31 49 ...	+24 18.2
24 ...	33 0 ...	23 59.8
25 ...	34 9 ...	23 42.1
26 ...	35 17 ...	23 25.0
27 ...	36 24 ...	23 8.5
28 ...	37 30 ...	22 52.4
March 1 ...	0 38 34 ...	22 36.8

COMET HOLMES (1892 III.).—Several communications with respect to the late appearances of this comet are inserted in the Comet Notes of *Astronomy and Astrophysics* for February, among which will be found one by Prof. E. Barnard. Observing with a 12-inch on the night of January 16, at 8h. 10m., he found that an estimation of the comet's diameter gave 30", while a setting of the wires indicated 29".4. While under observation "the comet seemed to be perceptibly brightening," and further measurements at 9h. 45m. gave a diameter of 32".4. At this time he says: "The nucleus had developed clearly, and was very noticeable as a small, ill-defined star." With the 36-inch, which he was able to use later, he made the following measures, which we reproduce here, as they are quite unique in showing the increase in diameter of a comet due evidently to some external impact:—

Standard Pacific time. h. m.	Diameter. "
10 29 ...	43.4
10 30 ...	44.9
10 31 ...	43.6
10 42 ...	47.8
10 43 ...	47.9
10 45 ...	46.0
11 13 ...	47.3
11 15 ...	46.1

In concluding his remarks he says: "This is certainly the most remarkable comet I have ever seen, taking everything into consideration."

The following is the ephemeris for this week:—

Greenwich, Midnight.

1893.	R.A. (app.) h. m. s.	Decl. (app.) °
Feb. 23 ...	2 19 4.4 ...	+34 31 7
24 ...	20 44.6 ...	33 36
25 ...	22 25.5 ...	36 9
26 ...	24 6.4 ...	38 42
27 ...	25 48.0 ...	41 18
28 ...	27 29.6 ...	43 54
March 1 ...	29 11.9 ...	46 34
2 ...	2 30 54.3 ...	34 49 13

SOLAR OBSERVATIONS AT ROME.—In the *Memorie Degli Spettroscopisti Italiani* for January, Prof. Tacchini communi-

cates the observations made at the Royal College with respect to the various phenomena observed at the solar surface during the third trimestre of 1892. Dealing first with the prominences the total number for each of the months are respectively for north latitudes, 182, 129, 120, total 431; and for south latitudes 141, 167, 185, the total number here amounting to 493. The balance here is in favour of the southern hemisphere for greater frequency, but a curious fact may here be remarked, and that is that the maxima for the north and south latitudes occur in the months of July and September respectively, each exceeding considerably the number of prominences recorded for the same month in the opposite hemisphere.

The greatest frequencies occurred in latitudes (+60°+70°) and (−50°−60°). The groups of spots seem to have pre-dominanted slightly in the southern latitudes, the record showing 49 against 41; at the equator as many as 13 for zone (0°+10°) were seen, the zone (0°−10°) showing only 4; the relative frequency occurred here in the same zones in both hemispheres (±10°±20°).

With reference to eruptions, the month of July contains the only records, six for the northern, and three for the southern hemisphere, four of these taking place in zone (+10°+20°).

Prof. Tacchini also has a note on the great prominence of November 16 last, in which he describes in detail the numerous observations which he was fortunate to procure. Although one can gather a good idea of the rapidity of the ascent from the table, the figures which accompany it show in a striking manner the great changes of shape that was such a conspicuous feature in its ascent. At 9h. 0m. on the 16th the height was only 131".8, but at 1h. it had reached 319".2, and at 1h. 35m., 534".3, this being its maximum height. It is interesting to notice the numbers showing the increase of altitude in one minute of time.

For instance, at 1h. 55m. the increase of altitude per minute was 0".56, at 1h. 4m. it was 6".75, decreasing from this value to 4".34 at 1h. 27m. At 1h. 32m. the velocity of ascent was increased, the value amounting to 9".72, but at 1h. 34m. the increase of altitude reached its maximum, 20".80, showing the ascent per minute.

THE STAR CATALOGUE OF THE "ASTRONOMISCHE GESSELLSCHAFT."—The Harvard College Observatory has now completed the task of cataloguing the zone of stars undertaken in connection with the great catalogue of the *Astronomische Gesellschaft*. The stars included number 8627, and lie between 49° 50' and 55° 10' north declination, and the positions are reduced to the epoch 1875. Most of the observations were made by Prof. Rogers during the years 1870–1884, and the reductions have throughout been in his charge. The publication appears simultaneously as vol. xv. part ii. of the *Annals of the Harvard Observatory*, and as one of the volumes of the *Gesellschaft*. All concerned are to be congratulated on the completion of the zone, which involved over twenty-six thousand observations and an immense amount of calculation.

NOVA AURIGÆ.—Mr. Fowler draws attention to the fact that the nova is still as bright as ninth magnitude, and therefore easily visible in comparatively small telescopes. Its spectrum seems to consist of the two bright nebula lines near wave-lengths 5006 and 4956. The latter is only slightly fainter than that at 5006.

PARALLAX OF β CYGNI.—Mr. Harold Jacoby, whose work on the reduction of the Rutherford photographic measures of the stars about β Cygni we have previously referred to, suggests in *Astronomical Journal*, No. 287, that the discrepancies in the results can be explained on the hypothesis of a parallax of β Cygni amounting nearly to a whole second of arc. To investigate this he has chosen five pairs of comparison stars, from which he has computed the parallax from each pair separately by "using the difference of the distances of the two comparison stars from β as the quantity from whose variation the parallax should appear;" in this way he has obtained the weighted mean for the parallax to be + 0".97, a value which, if endorsed by further observations will show us that of all stars β Cygni is one of our nearest neighbours.

GEOGRAPHICAL NOTES.

MR. G. B. GRUNDY, of Brasenose College, the student in geography appointed jointly by the University of Oxford and the Royal Geographical Society, has made a careful survey of the battlefield and site of the town of Platæa and of Leuctra,